

Establishing a New Clinical Informationist Role in an Academic Health

Sciences Center

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ABSTRACT. The concept of clinical informationists is not new but has recently been gaining more widespread acceptance across the United States. This article describes the lessons and challenges learned from starting a new clinical informationist service targeted to internal medicine residents in a large academic medical center. Lessons included the need for becoming immersed in evidence-based practice fundamentals; becoming comfortable with the pace, realities, and topics encountered during clinical rounds; and needing organizational commitment to both the evidence-based practice paradigm and clinical informationist role. Challenges included adapting to organizational culture, resident burnout, and perceptions of information overload.

KEYWORDS. Academic health sciences libraries, clinical informationists, librarians, rounds, medical education, residents, roles

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INTRODUCTION

The clinical informationist (CI) concept has begun to blossom in the last five years and has come to be understood as embedding a librarian with clinicians in processes of patient care. While institutions such as Vanderbilt University have a more mature model of informationists, utilizing and developing this role for more than decade,¹ other health sciences institutions have been slower to adopt the model, opting instead for liaison or subject librarians, some of whom are also embedded.^{2,3} This was true at The Ohio State University Health Sciences Library (OSUHSL), where librarian services had historically been focused more on academic students, faculty, and staff. Service were also offered to those working in the clinical environment; however, the emphasis had been on integrating library resources and instruction within specific degree programs rather than reaching out to clinicians to assist with specific questions related to real, not hypothetical, patients.

In 2009, following a discussion with library leadership, the former vice dean of medical education agreed to support a month-long pilot project that placed a librarian with an inpatient general medicine service team comprised of an attending (supervising) physician, residents, and medical students. The librarian's purpose was to record clinical questions as they came up in conversation and either find answers for the team in real time or research and return answers later the same day. The pilot was deemed successful based not so much on the number of questions searched (about one per day), but rather the nature and complexity of questions, the ability to learn about and provide service to a group not previously served, and the potential to integrate evidence-based medicine in context at both the undergraduate and graduate medical education levels. This pilot planted the seeds for further exploration of the CI role. Over the

course of the next year and a half, funding became available through the reallocation of a portion of an annual revenue stream received from the medical center to create a full-time CI position that would primarily serve internal medicine.

The job description was written to reflect that much of the work would be done within the clinical environment. Phrases such as “intensive information services,” “fast-paced clinical environment,” and “contributing to confidential discussions concerning illness and disease” were used. Fifty percent of the job was envisioned to involve rounding, addressing questions from clinical teams, and attending department-specific events such as seminars and morning reports. Another third of the position involved teaching, both within the informationist’s assigned department and as needed to support the library’s education efforts. The rest of the job description was written to reflect that this position also interacted as part of the library organization and as such might involve participating in committee work and other similar duties.

With regards to education and background, this position preferred, but did not require, an undergraduate or higher degree in health or basic sciences as well as considerable experience working in either a health sciences librarian position or a clinical health profession. This was less restrictive than the Florance and Davidoff definition requiring graduate degrees in both information science and a health sciences field.⁴ The decision to title the position as clinical informationist rather than clinical librarian was deliberate for two reasons. One institution-specific reason was The Ohio State University Libraries preferred to reserve librarian titles for faculty librarians, and this position was classified as non-faculty administrative and professional. Additionally, the existing non-faculty classified position titles did not adequately embody the envisioned role of the clinical informationist. The library leadership felt that clinical

informationist reflected an evolution in the librarian role more than clinical librarian, although the duties would arguably be the same in this case.

INITIAL VISION FOR THE CLINICAL INFORMATIONIST

As described in the position description, the majority of the CI's job was envisioned to be spent in an expanded service role. The idea was to save the clinicians' time by doing the searching for them. Within a few weeks, at the suggestion of the director of the internal medicine residency program, the CI began rounding with a general medicine team that was primarily a teaching service. In this circumstance, this meant that the service typically treated fewer patients than other services, which would allow more time for teaching. This service also would sometimes have a chief resident as the attending physician. The typical makeup of this service's clinical team was an attending physician, a third-year internal medicine resident, a first-year internal medicine intern, two third-year medical students, a pharmacist or pharmacy intern, a clinical case manager, and the informationist. Rounds (sitting or walking rounds) were conducted according to the preferences of the attending physician and generally began between 8:00 am and 10:00 am lasting from one to three hours. The CI attended rounds an average of three days per week. This allowed time for other duties outside the clinical environment and adjusting to a new workplace.

Within the first twelve months of the CI position, 376 searches were completed to address questions from clinicians with whom the CI interacted. The types of questions varied. Review articles and practice guidelines were among the most frequently requested items. Sometimes the attending physician or resident would request a particular article or guideline about which they had some prior knowledge, but usually it was left to the CI to select appropriate

materials. True clinical foreground questions, mostly typically about therapy and/or diagnosis, were also common. Some examples included the latest evidence comparing vancomycin to metronidazole for treating *Clostridium difficile* and the diagnostic utility of the CA 19-9 biomarker for pancreatic cancer.

Figure 1 denotes the source of questions. The vast majority (70%) originated from rounds. This was very positive and demonstrated that the CI role could have an impact. About six months into the new position, an informal, non-scientific evaluation was distributed to all residents, medical students, and clinical staff with whom the CI worked. The questions were loosely based on items from Marshall et al.'s multi-site survey on the value of library and information services in patient care, addressing time savings, awareness of resources, and influence on clinical decision making.⁵ Results of the evaluation showed that respondents were generally pleased with the kind of support provided by the CI.

[PLACE FIGURE 1 HERE]

Legend: FIGURE 1. Sources of Questions Received in First Year of Clinical Informationist Service

Early Preparation

The CI hired for this position was an experienced medical librarian with expert search skills and a second master's degree in public health. However, she had not had experience working within a clinical team or in a clinical environment. Key evidence-based medicine (EBM) texts such as *JAMA User's Guide to the Medical Literature* and Strauss et al.'s *Evidence- Based Medicine*:

How to Practice and Teach It helped to orient the CI, as did conversations with colleagues at other institutions who had experience with working in the clinical environment. Within the first year, the CI also attended a four-day EBM immersion program. These texts and experiences were helpful in gaining a deeper understanding of EBM concepts and key critical appraisal skills.

The CI also had to adjust to the pace of rounds discussions, the clinical concepts being discussed, and the level of filtering that was expected by the clinical team. The CI had an undergraduate background in biology, which brought some familiarity with basic anatomy and physiology. However, some years had passed since she had actively used this knowledge. The pace of discussion on rounds was fast, but with time and practice, the CI was able to achieve a good understanding of the vocabulary, acronyms, abbreviations, and clinical concepts being discussed. Attending physicians and residents tended to either over- or underestimate how much the CI understood at first, but communication improved as relationships developed. One advantage to remaining on the general medicine service rather than rotating to different subspecialty services was that similar disease states and morbidities were seen frequently over time. The CI developed a routine of consulting point-of-care resources, or sometimes consumer health resources, while following the discussion to develop her own understanding.

The CI also benefited from participation in massive online open courses (MOOCs) such as Fundamentals of Pharmacology and Clinical Problem Solving, both available through Coursera <<https://www.coursera.org/>>. Institutional policies made it impractical for the CI to audit courses, but auditing courses on medical terminology and/or pathophysiology might have been helpful as well. In retrospect, a more formal education plan similar to that at the National Institutes of Health Library would have been beneficial to build advanced subject knowledge.⁶

Related to comprehension of the discussion on rounds is comfort with filtering search results. Very quickly, the CI learned to send only a few of the most relevant articles because residents typically did not take the time to read more than abstracts. They expressed feelings of being overwhelmed by lengthy lists of search results and just wanted succinct answers to their questions. However, the CI also typically sent search strategies that team members could use to identify additional literature for themselves if so inclined. This was a good way to model effective searching technique when there was not time for face-to-face instruction.

Choosing which articles should be sent to the team required more in-depth reading of articles than would be typical for a medical reference librarian conducting a literature search. It also required critical appraisal skills and developing a deeper scientific understanding of the questions to more intelligently filter results. It took some time for the CI to develop skills and confidence in this regard. The clinicians were not always forthcoming with feedback about the CI's article choices beyond a general "thank you." It was important for the CI to solicit this feedback directly and in person.

LESSONS AND CHALLENGES

Many lessons were learned in the first year of the newly established CI role in this academic medical center. Sharing these lessons and challenges is a way of acknowledging what could have been done better and is intended to help others plan what they could do well from the outset of such a program.

Self Promotion

Though a library team puts a lot of thought and planning into creating a position, even including administrative physicians in the process, members of the team on the floor may not immediately understand the CI's skill set and the best way to take advantage of the CI's presence on the team. Most have likely never experienced a clinical librarian or CI and may have limited experience with librarians during their education. Because of this, mastering an elevator speech that intelligently and concisely explains the role for a CI within a clinical team is essential. Clinical teams move quickly and do not spend a lot of time discussing matters that are not directly related to patient care. Confidently communicating the CI role can help. Personal confidence is essential to promoting the CI's expertise to the team. The age-old adage of "fake it until you make it" applies in this situation. Although a CI can sometimes feel awkward while trying to develop and establish a role in the hospital ward setting – while experiencing new sights, sounds, smells, and emotions that could sometimes be unpleasant – teams respond well if they feel a CI is confident and understands his or her role in the team. There is no magic formula for adapting well to unfamiliar situations. A successful CI should have a personality compatible with risk and change but should not expect to be instantly comfortable in the role.

Administrative Commitment and Position Justification

It is critical to have a clear understanding of expectations from both ends of the administrative spectrum (library and health system) about how the position will be developed and evaluated. Common understandings about how many hours of the week certain departments could expect the CI to be available to them and the level of flexibility to explore other departments became

important details in this position. Sources of salary funding for the continuation of the position also became important, adding another level of complexity. Each institution will have its own culture for these types of service agreements. Strongly consider exploring, agreeing, and documenting administrative details such as number of hours per week and salary funding source (the library, the department, or a combination) prior to the hiring of a CI position. Such an agreement should also contain a draft of an evaluation plan that would be necessary to show the position is having an impact on clinical teams and their care of patients. If an institution values qualitative information, such as anecdotes of how the CI helped or written praise of the position from department leadership, plan to collect that type of data from the beginning, using surveys or critical incident methodology if appropriate. If the institution prefers to see more clinically oriented data, such as length of stay or readmission rates, a much more rigorous plan will be needed and may require institutional review board approval. Once key stakeholders agree to a plan, it is recommended that this plan be distributed to the departments it affects from the departmental leaders themselves. Though completing this level of planning and communication prior to a position even starting is daunting, the transparency it provides to all parties is worth the effort.

The library must also be willing to commit a significant amount of time and resources to allow a new informationist to develop subject expertise and familiarize himself or herself with institutional culture. Even in a situation where an informationist has graduate degrees in both information science and a science or health sciences field, time will be needed to remain up to date with scientific advances and information science. This type of professional development will require financial commitment as well as time away from library committees and obligations requiring libraries to plan accordingly.

The Limitations of Rounds

Melnyk and Fineout-Overholt assert that the first step of EBP is cultivating a spirit of inquiry.⁷

This notion means that the workplace culture of the clinician must support asking questions and challenging the status quo, especially as it relates to quality in health care. Over several months, the CI noted that the pace and culture of teaching rounds was not as conducive to inquiry as expected. One lesson that emerged was that her physical presence influenced whether she received questions or not. Though rounds were time consuming, they did serve the purpose of maintaining her role as a member of the team and providing consistent in-person access to ask questions. She also would check back in with teams in the afternoon after rounds were completed to reinforce the idea that she was available to respond to additional questions. Physical presence was also important since the CI was not granted access to the electronic medical system. Thus, hearing details about the patients during rounds was important.

A second lesson is that new special initiatives of the hospital or the department, such as a focus on earlier discharge, can impact the dynamics of rounds. This may be felt even more in the future given the changes associated with health care reform. Undoubtedly, these types of initiatives come and go, and rarely can the clinical team control them or how they may ultimately affect rounds. CIs need to be aware of this and adapt accordingly.

As the early months passed by, the CI suspected that resident burnout could be having an effect on not only the utilization of the CI but also the acceptance of the idea that EBM was achievable in daily practice settings. Rates of burnout in internal medicine residents and interns are high, hovering in the 50% range.^{8,9} Residents in these studies were tired, emotionally

exhausted, and dealing with high levels of education debt. One study of internal medicine residents at the Mayo Clinic reported a statistically significant association of burnout and fatigue (among other measures) with reporting of a motor vehicle crash or near-miss¹⁰ While not surprising, how burnout manifested itself with regards to the CI was unexpected. Essentially, residents within the CI team perceived the idea of incorporating literature into their practice as adding to their workload rather than potentially saving them time with decision making. The CI empathized with the residents, but felt compelled to provide literature that appeared helpful. This effort became a balancing act of how much inquiry to encourage and how much literature to send for any given question.

The reality of working with residents and attending physicians in a teaching hospital is that they are often overwhelmed. Their personalities vary, as do their educational experience and preconceptions of EBM. They might perceive a new emphasis on EBM vis-à-vis a CI as just another initiative to deal with. These are cultural issues that most CIs (and libraries) are unable to control. The only thing that can be controlled is the CIs response to these realities. This is where the predetermined plans prior to the position's start could be the most beneficial.

Contrasting Visions

As mentioned previously, the library's initial vision for the CI role was that of providing expert information service – doing the searching for the clinical team. Over the first year, the CI recognized that clinical teams and the residency program leadership desired a more education-focused role rather than a just-in-time service. It is not clear whether this shift was fueled by a lack of EBM culture, a desire not to add to their workloads, personalities, or the fact that as a

teaching hospital, an emphasis was placed on scholarly activity. Whatever the reason, a disconnect between the library vision and the medical center/College of Medicine's vision was identified.

As noted previously, the CI's responsibilities as outlined in the position description included attendance at departmental events such as seminars and morning report as well as group instruction and involvement with the educational aspects of the internal medicine residency program. Though this article is focused on the rounding aspect of the CI's experience, these other aspects of the position deserve mention as important ways to gain visibility, build relationships within the department, and to help clarify the department's vision for teaching and implementing EBM. As demands on her time increased, the CI did need to limit the number of events at which she was a mainly passive attendee as opposed to an active instructor or participant. For example, attendance at department-wide grand rounds can be useful for networking and general education, but to attend all of these lectures would take too much time away from core activities like searching and instructing. Residency programs vary in how they incorporate formal lectures, research projects, and other educational opportunities as well as how they are hierarchically managed (strongly managed by residents or not, how they incorporate interns and medical students, etc.). Clinical units vary in governance structure, planning, and management of educational opportunities. Allow plenty of time to become familiar with the unique culture of an institution. Also consider the size of the institution. The larger the institution, the more difficult it may be to ascertain its culture or effect change.

DISCUSSION

The first year of the CI position was a learning experience, realizing lessons learned and challenges to be faced. Since all positions evolve to some extent, this was not unexpected. These lessons can serve as both a cautionary tale and guidelines for success in the future. Lessons included realizing the need for concentrated time for learning and attending appropriate training programs, even with an experienced librarian. They also included gaining a deeper understanding of the role of institutional culture and administrative commitment to an innovative approach to integrating EBM into teaching rounds, as well as understanding the workplace culture and stresses of residents themselves.

The startup of this CI program demonstrated that an institution's buy in to the integration of EBM is a key component to the success of a CI initiative. Few are inclined to say they dislike libraries, and few clinicians are likely to say they are opposed to EBM. The reality is they often lack a full understanding of what tactics might be needed to fully implement a major EBM integration at a system level. If EBM is to be taken seriously in a system, a plan denoting accountability and assessment is needed. A CI can be an important part of this plan but is not likely to be at a level to be the prime change agent. That responsibility lies jointly with residency and library leadership.

Changes in accreditation may provide a sufficient nudge in the direction of EBM to warrant more libraries to consider CI positions. News of impending changes to graduate medical education accreditation appeared in a March 2012 *New England Journal of Medicine (NEJM)* article. Of interest was a common competency of practice-based learning and improvement. This includes the ability to "locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems" as well as to "use information technology to optimize learning."¹¹ The specific mention of the PICO question framework and EBP in the *NEJM* article

is especially interesting and pertinent to libraries contemplating adding CI positions. As indicated by the authors of the *NEJM* article,¹² the new system creates an opportunity to assess the use of complex medical information, an area that lacks sufficient evidence as to its impact on residency. However, this is just one new competency out of many. The milestones included in the document did not include guidance on measuring related outcomes. Time will tell how these new standards affect EBM integration overall.

LIMITATIONS

The CI's experiences, which were primarily with internal medicine in a large tertiary academic medical center, may limit their applicability to other settings. Many patients on general internal medicine services in such a facility are dealing with extensive co-morbidities and difficult social situations. A recent study noted that a clinical librarian received more questions on highly complex patients,¹³ suggesting that OSU's choice to initiate the CI program on a general medicine service was a reasonable one. In smaller settings, an intensive care unit or other unit with highly complex patients may be better targets for a beginning CI. It is also likely that relationship-building with clinicians would be accelerated in a smaller hospital or a smaller department.

CONCLUSION

Initiating a CI program is a challenging endeavor. Success for a library depends on securing commitment from clinicians and/or clinician educators to partner with the CI in developing

mutual objectives. It is important to allow significant time (a year or more) for the CI to assimilate to the hospital culture, which varies from institution to institution. Above all, the CI should be flexible in his or her approach and be willing to fail a few times in order to find the best fit.

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